

CS114-43

Sheeting, hospital (for mattress protection)

U. S. DEPARTMENT OF COMMERCE

JESSE H. JONES, Secretary

NATIONAL BUREAU OF STANDARDS

LYMAN J. BRIGGS, Director

Bureau of Standards

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HOSPITAL SHEETING FOR MATTRESS PROTECTION

COMMERCIAL STANDARD CS114-43

Effective Date for New Production from December 1, 1943



A RECORDED VOLUNTARY STANDARD
OF THE TRADE

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P R O M U L G A T I O N
of
COMMERCIAL STANDARD CS114-43
for
HOSPITAL SHEETING FOR MATTRESS
PROTECTION

On March 25, 1943, at the instance of the American Hospital Association, a joint meeting of a committee of manufacturers of hospital sheeting for mattress protection and a committee of the American Hospital Association adopted a recommended commercial standard for this commodity. Those concerned have since accepted and approved the standard as shown herein for promulgation by the U. S. Department of Commerce, through the National Bureau of Standards.

The standard is effective for new production from December 1, 1943.

Promulgation recommended.

I. J. Fairchild,
Chief, Division of Trade Standards.

Promulgated.

Lyman J. Briggs,
Director, National Bureau of Standards.

Promulgation approved.

Jesse H. Jones,
Secretary of Commerce.

HOSPITAL SHEETING FOR MATTRESS PROTECTION

COMMERCIAL STANDARD CS114-43

PURPOSE

1. The purpose of this commercial standard is to serve as a guide to producers, distributors, and users of sheeting impervious to moisture used for the protection of hospital mattresses. It also provides a basis for clear understanding among producers, distributors, and purchasers, and for specifying and guaranteeing the quality of such sheeting.

SCOPE

2. This commercial standard covers requirements and methods of test of fabrics coated on both sides or impregnated with a suitable compound. The requirements include thickness; breaking strength; tearing strength; resistance to oil and disinfectants; resistance to sterilization, accelerated aging, cracking, and moisture penetration; and burning rate. The wording of a guarantee statement by the manufacturer is included.

GENERAL REQUIREMENTS

3. *Fabric.*—The fabric shall be woven cotton, rayon, or any other suitable synthetic or natural fiber. A substantial close-woven selvage, not less than $\frac{1}{8}$ inch wide, is required.

4. *Material and workmanship.*—The finished sheeting shall have a uniformly smooth surface and shall be sufficiently flexible for normal hospital use without cracking or losing its impervious character. It shall not be tacky and shall have no objectionable odor. It shall not contain materials known to have an irritating effect on the skin under the conditions of use. The color may be natural gray-white, or pigmented, as desired.

5. *Resistance to mineral oil.*—When tested by pooling for 2 hours with liquid petrolatum U. S. P. (Par. 17), the sheeting shall show no evidence of softening, tackiness, hardening, peeling, blistering, or any other change that might affect its serviceability.

6. *Resistance to disinfectants.*—When a sample of sheeting is tested by pooling for 30 minutes with 70-percent alcohol, 5-percent lysol, or 5-percent phenol solution (Par. 17), it shall show no evidence of softening, tackiness, hardening, peeling, blistering, or other change that might affect its serviceability. Samples that pass visual inspection shall meet the requirement for resistance to cracking (Par. 10). Slight hardening shall not be cause for rejection unless the sample fails under the test for cracking resistance (Par. 10).

7. *Resistance to sterilization.*—A sample of the sheeting shall not be significantly softer or stiffer than the original, shall not be tacky, and shall show no other changes which might affect its serviceability after being subjected to five sterilizations in steam at 121° C (Par. 18). Samples that pass visual inspection shall meet the requirement for resistance to cracking (Par. 10).

8. *Accelerated aging.*—Sheeting which has been subjected to the compressed oxygen test (Par. 19) shall not be significantly softer or stiffer than the original, shall not be tacky, and shall show no other changes which might adversely affect its serviceability. A few small blisters that may appear during the test shall not be cause for rejection unless they allow penetration of moisture (Par. 21). Samples that pass visual inspection shall meet the requirement for resistance to cracking (Par. 10).

9. *Water permeability.*—Samples tested in accordance with paragraph 21 shall show no evidence of moisture penetration.

10. *Resistance to cracking.*—When tested in accordance with paragraph 20, before and after the tests for resistance to disinfectants, sterilization, and accelerated aging (Pars. 17, 18, and 19), the coating shall not crack at the crease and shall show no evidence of moisture penetration (Par. 21).

11. *Burning rate.*—When tested in accordance with paragraph 22, the time required for the flame to travel a distance of 8 inches along the test specimen shall be not less than 75 seconds.

12. *Thickness.*—The thickness shall be not less than 0.013 inch.

13. *Width and length.*—Sheeting shall be 36 inches—tolerance minus 1 inch—wide and shall be furnished in rolls containing 50 to 60 yards. Rolls shall contain not more than three pieces, and no piece shall be less than 6 yards long. The width and length shall be marked on each roll. Other commercial widths may be specified.

14. *Breaking strength (dry and wet).*—The breaking strength of the finished sheeting shall be not less than 55 pounds in warp and 50 pounds in filling in both wet and dry tests when tested by the grab method (Par. 16).

15. *Tearing strength.*—The tearing strength shall be not less than 3.5 pounds in warp and 3.5 pounds filling when tested by the trapezoid method (Par. 23). If the breaking strength of the sheeting is higher than 55 pounds in both the warp and filling, a tolerance of minus 0.4 pound in tearing strength shall be allowed for each 5 pounds breaking strength above the minimum of 55 pounds, except that the tearing strength shall not be below 2.0 pounds.

METHODS OF TEST

16. *Breaking strength (grab method)—(Dry and wet).*—Breaking strength tests shall be conducted as described in the latest edition of Woven Textile Fabrics—Testing and Reporting, Commercial Standard CS59.

17. *Resistance to mineral oil and disinfectants.*—A sample of sheeting shall be tested by pooling on it a quantity of the agent to be tested for the required length of time at room temperature, after which it is sponged thoroughly with soap and water, rinsed, and dried

on a horizontal ventilated screen at room temperature. The length of time and number of periods of exposure shall be as follows:

Mineral oil-----	One period, 120 minutes.
70-percent alcohol-----	One period, 30 minutes.
5-percent phenol-----	Five periods, 6 hours each, samples to be sponged with soap and water and dried between periods.
5-percent lysol-----	Same procedure as for 5-percent phenol.

Samples that pass visual examination after treatment with disinfectants shall be tested for cracking (Par. 20).

18. *Sterilization.*—A piece of sheeting 12 by 12 inches square shall be folded once to give a 12- by 6-inch rectangle and then folded at right angles to give a 6- by 6-inch square. If necessary to prevent unfolding during sterilization, a loosely fitting clip or band, of a light weight, may be used. The folded sample shall then be sterilized for 20 minutes at 121° C. in pure, saturated steam, after which it shall be scrubbed thoroughly with soap, water, and a soft brush or sponge to remove any wax, bloom, or finishing materials. Folded as before, it shall then be subjected to four additional sterilizations of 20 minutes each at 121° C. The sheeting shall be removed from the sterilizer and exposed to the air for at least 20 minutes between each two sterilizations. After the last sterilization, the sheeting shall be allowed to stand in air for at least 2 hours before examination. Slight surface adhesion immediately upon removal from the sterilizer that separates without damage to the coating shall not be cause for rejection. Samples that pass visual examination shall be tested for cracking (Par. 20).

19. *Accelerated aging.*—A specimen shall be enclosed in an oxygen bomb filled with oxygen under a total pressure of 300 ± 10 pounds per square inch and held at a temperature of 69° to 71° C. in accordance with the method described in Federal Specification ZZ-R-601a, for 8 days. Samples that pass visual examination shall be tested for cracking (Par. 20).

20. *Cracking resistance.*—A piece of sheeting at least 6 inches square shall be folded double and placed on a smooth, hard, flat surface. The folded edge is then rolled 10 times (5 times in each direction) along its full length with a metal roller approximately 1 inch in diameter, under a pressure of approximately 5 pounds.

21. *Moisture penetration.*—A sample at least 6 inches square shall be clamped in a suitable device and a circular area 4 inches in diameter subjected to a hydrostatic pressure of 20 inches of water for 60 minutes. Three samples shall be tested, one taken from the middle section of the sheeting and one near each selvage. Creased samples (Par. 10) shall be so placed that the crease is on a diameter of the circle of fabric under test, and the pressure is directed against the surface of the sheeting that was on the inside of the fold. There shall be no evidence of moisture penetration or dampness on the dry side of the sheeting. (See 21a, alternate method.)

21a. (Alternate method.)—Hydrostatic pressure of 25 pounds per square inch shall be applied over an area of 1 square inch for 5 minutes, the test to be conducted in any convenient way.

22. *Burning rate.*—A sample of sheeting 15 inches long and 2½ inches wide is held in a horizontal position by metal clamps spaced 2 inches apart, which grip the sample along its lengthwise edges. At a distance of 3½ inches from one end, a pencil line is drawn perpendicular to the lengthwise direction of the specimen. Eight inches from this line, another pencil line is drawn parallel to it. One end of the 15-inch strip is then ignited, and the time required for the flame to travel the 8-inch distance between the two parallel lines on the sample is observed.

23. *Tearing strength.*—Trapezoid method, ASTM Designation D39-39.

GUARANTEE

24. It is recommended that sheeting manufactured in accordance with this commercial standard shall be guaranteed by the manufacturer by the following statement appearing on labels, invoices, contracts, etc.:

This hospital sheeting for mattress protection is guaranteed
by _____ to comply with all the requirements
(manufacturer)
of CS114-43, as issued by the National Bureau of Standards.

EFFECTIVE DATE

The standard is effective for new production from December 1, 1943.

STANDING COMMITTEE

The following individuals comprise the membership of the standing committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Division of Trade Standards, National Bureau of Standards, which acts as secretary for the committee.

A. F. SCHILDAUER (chairman), E. I. du Pont de Nemours & Co., Inc., Rubber Products Division, Fairfield, Conn.

J. L. HAAS, Hodgman Rubber Co., Framingham, Mass.

J. J. McDONOUGH, Plymouth Rubber Co., Canton, Mass.

W. A. PEACOCK, Peacock Surgical Co., Inc., 1235 Texas Ave., Shreveport, La.

H. M. BERNER, American Hospital Supply Corporation, The Merchandise Mart, Chicago 54, Ill.

D. H. PALMER, Hospital Bureau of Standards & Supplies, 247 Park Avenue, New York 17, N. Y.

Miss C. C. PRATT, Orange Memorial Hospital, Orange, N. J.

Miss C. E. GOULD, New Jersey Orthopaedic Hospital & Dispensary, Orange, N. J.

ACCEPTANCE OF COMMERCIAL STANDARD

This sheet properly filled in, signed, and returned will provide for the recording of your organization as an acceptor of this commercial standard.

Date _____

Division of Trade Standards,
National Bureau of Standards,
Washington 25, D. C.

Gentlemen:

Having considered the statements on the reverse side of this sheet, we accept the Commercial Standard CS114-43 as our standard of practice in the

Production¹ Distribution¹ Use¹ Testing¹

of hospital sheeting for mattress protection.

We will assist in securing its general recognition and use and will cooperate with the standing committee to effect revisions of the standard when necessary.

Signature of individual officer _____
(In ink)

(Kindly typewrite or print the following lines)

Name and title of above officer _____

Company _____
(Fill in exactly as it should be listed in pamphlet)

Street address _____

City and State _____

¹ Please designate which group you represent by drawing lines through the other three. Please file separate acceptances for all subsidiary companies and affiliates which should be listed separately as acceptors. In the case of related interests, trade papers, colleges, etc., desiring to record their general approval, the words "in principle" should be added after the signature.

TO THE ACCEPTOR

The following statements answer the usual questions arising in connection with the acceptance and its significance:

1. *Enforcement.*—Commercial standards are commodity specifications voluntarily established by mutual consent of those concerned. They present a common basis of understanding between the producer, distributor, and consumer and should not be confused with any plan of governmental regulation or control. The United States Department of Commerce has no regulatory power in the enforcement of their provisions, but since they represent the will of the interested groups as a whole, their provisions through usage soon become established as trade customs and are made effective through incorporation into sales contracts by means of labels, invoices, and the like.

2. *The acceptor's responsibility.*—The purpose of commercial standards is to establish, for specific commodities, nationally recognized grades or consumer criteria, and the benefits therefrom will be measurable in direct proportion to their general recognition and actual use. Instances will occur when it may be necessary to deviate from the standard, and the signing of an acceptance does not preclude such departures; however, such signature indicates an intention to follow the commercial standard where practicable, in the production, distribution, or consumption of the article in question.

3. *The Department's responsibility.*—The major function performed by the Department of Commerce in the voluntary establishment of commercial standards on a Nation-wide basis is fourfold: first, to act as an unbiased coordinator to bring all interested parties together for the mutually satisfactory adjustment of trade standards; second, to supply such assistance and advice as past experience with similar programs may suggest; third, to canvass and record the extent of acceptance and adherence to the standard on the part of producers, distributors, and users; and fourth, after acceptance, to publish and promulgate the standard for the information and guidance of buyers and sellers of the commodity.

4. *Announcement and promulgation.*—When the standard has been endorsed by a satisfactory majority of production or consumption in the absence of active, valid opposition, the success of the project is announced. If, however, in the opinion of the standing committee or the Department of Commerce, the support of any standard is inadequate, the right is reserved to withhold promulgation and publication

ACCEPTORS

The organizations and individuals listed below have accepted this commercial standard as their standard of practice in the production, distribution and use of hospital sheeting for mattress protection. Such endorsement does not signify that they may not find it necessary to deviate from the standard nor that producers so listed guarantee all of their products in this field to conform with the requirements of this standard. Therefore specific evidence of conformity should be obtained where required.

ASSOCIATIONS

Allentown Hospital Association, Allentown, Pa.
 American Hospital Association, The, Philadelphia, Pa.
 American National Red Cross, Washington, D. C.
 Association of California Hospitals, San Francisco, Calif. (In principle.)
 Aultman Hospital Association, Canton, Ohio.
 Greenwich Hospital Association, Greenwich, Conn.
 Illinois Hospital Association, Waukegan, Ill. (In principle.)
 Jewish Hospital Association of Philadelphia, Philadelphia, Pa.
 Missouri Pacific Hospital Association, St. Louis, Mo.
 National Organization for Public Health Nursing, New York, N. Y.
 National Tuberculosis Association, New York, N. Y.
 Ohio Hospital Association, Columbus, Ohio.
 Paterson General Hospital Association, Paterson, N. J.
 Presbyterian Hospital Association of Colorado, The, Denver, Colo.
 St. Catherine's Hospital Association, Brooklyn, N. Y.
 St. Luke's Hospital Association, Jacksonville, Fla.
 Youngstown Hospital Association, Youngstown, Ohio.

FIRMS

Abbott Hospital, Minneapolis, Minn.
 Abraham & Straus, Brooklyn, N. Y.
 Alexian Brothers' Hospital, Chicago, Ill.
 Allegheny General Hospital, Pittsburgh, Pa.
 American Hospital Supply Corporation, Chicago, Ill.
 Atlantic County Hospital for Mental Diseases, Northfield, N. J.
 Baptist Memorial Hospital, Memphis, Tenn.
 Baptist State Hospital, Little Rock, Ark.
 Baroness Erlanger Hospital, Chattanooga, Tenn.
 Bearfoot Sole Co., Inc., The Akron, Ohio.
 Berkeley Hospital, Berkeley, Calif.
 Beth Israel Hospital, New York, N. Y.
 Blodgett Memorial Hospital, Grand Rapids, Mich.
 Blossom Manufacturing Co., New York, N. Y.
 Boston City Hospital, The, Boston, Mass.
 Broadlawns Polk County Hospital, Des Moines, Iowa.
 Brooklyn Hospital, The, Brooklyn, N. Y.
 Brunsene Co., The (Division of The H. M. Sawyer & Son Co.), East Cambridge, Mass.
 Bryn Mawr Hospital, The, Bryn Mawr, Pa.
 Buffalo General Hospital, Buffalo, N. Y.
 Burbank Hospital, Fitchburg, Mass.
 Burlington County Hospital for Insane, New Lisbon, N. J.
 Butterworth Hospital, Grand Rapids, Mich.
 California Hospital, The, Los Angeles, Calif.
 Cedars of Lebanon Hospital, Los Angeles, Calif.
 Central Maine General Hospital, Lewiston, Maine.
 Charles S. Wilson Memorial Hospital, Johnson City, N. Y.
 Charleston General Hospital, Charleston, W. Va.
 Chester County Hospital, The, West Chester, Pa.
 Chester (General) Hospital, Chester, Pa.
 Children's Convalescent Home, Cincinnati, Ohio.

Children's Hospital, San Francisco, Calif.
 Church Home & Hospital, Baltimore, Md.
 Cincinnati General Hospital, Cincinnati, Ohio.
 City-County Hospital, El Paso, Tex.
 Cleveland, City of, Chronic Hospital, Warrensville, Ohio.
 Cleveland Hospital Council, The, Cleveland, Ohio.
 Cleveland, University Hospitals of, Cleveland, Ohio.
 Clifton Springs Sanitarium, Clifton Springs, N. Y.
 Coaldale State Hospital, Coaldale, Pa.
 Colorado Springs, City of, Memorial Hospital, Colorado Springs, Colo. (In principle.)
 Conemaugh Valley Memorial Hospital, Johnstown, Pa.
 Consumers' Testing Laboratories, Philadelphia, Pa.
 Conwell & Co., E. L., Philadelphia, Pa.
 Cox & Fuller, New York, N. Y.
 Creighton Memorial St. Joseph's Hospital, Omaha, Nebr.
 Dallas City-County Hospital System, Dallas, Tex.
 Deaconess Hospital, Buffalo, N. Y.
 Deaconess Hospital, Spokane, Wash.
 Delaware Hospital, Inc., The, Wilmington, Del.
 Denver General Hospital, Denver, Colo.
 Detroit Testing Laboratory, The, Detroit, Mich. (In principle.)
 Doctors Hospital, New York, N. Y.
 Dow Chemical Co., Midland, Mich.
 du Pont de Nemours & Co., Inc., E. I., Fabrikoid Division, Newburgh, N. Y.
 du Pont de Nemours & Co., Inc., E. I., Rubber Products Division, Fairfield, Conn.
 Duke Hospital, Durham, N. C.
 Durite Plastics, Inc., Philadelphia, Pa. (In principle.)
 Eastern Shore State Hospital, Cambridge, Md.
 Emory University Hospital, Emory University, Ga.
 Endurette Corporation of America, Cliffwood, N. J.
 Episcopal Eye, Ear & Throat Hospital, Washington, D. C.
 Esselen, Inc., Gustavus J., Boston, Mass.
 Fairmont General Hospital, Fairmont, W. Va.
 Federal Leather Co., The, Belleville, N. J.
 Flower Hospital, The, Toledo, Ohio.
 Franklin Square Hospital, Baltimore, Md.
 Frederick Ferris Thompson Hospital, Canandaigua, N. Y.
 Friends Hospital, Philadelphia, Pa.
 Garfield Memorial Hospital, Washington, D. C.
 General Dyestuff Corporation, New York, N. Y.
 General Hospital of Fresno County, Fresno, Calif.
 General Hospital of Syracuse, The, Syracuse, N. Y.
 Genesee Hospital, The, Rochester, N. Y.
 Georgia University Hospital, Augusta, Ga.
 Germantown Dispensary & Hospital, Philadelphia, Pa.
 Good Samaritan Hospital, Dayton, Ohio.
 Goodrich Co., The B. F., Akron, Ohio.
 Grace Hospital, The, Detroit, Mich.
 Grace Hospital Society, New Haven, Conn.
 Grant Hospital, Columbus, Ohio.
 Gross Rubber Co., Sharon, Pa.
 Haartz-Mason-Grower Co., Watertown, Mass.
 Harper Hospital, Detroit, Mich.
 Hartford Textile Co., New York, N. Y.
 Hatch Textile Research, New York, N. Y.
 Henrietta Eggleston Hospital for Children, Atlanta, Ga.

- Henry Ford Hospital, Detroit, Mich.
 Herman Kiefer Hospital, Detroit, Mich.
 Hermann Hospital, Houston, Tex.
 Highland Sanitarium, Shreveport, La.
 Hodgman Rubber Co., Framingham, Mass.
 Holland-Rantos Co., Inc., New York, N. Y.
 Holyoke Hospital, Holyoke, Mass.
 Homeopathic Hospital of Reading, Reading, Pa.
 Hospital Bureau of Standards & Supplies, Inc., New York, N. Y.
 Hospital Equipment Corporation, New York, N. Y.
 Hospital of the Good Samaritan, The, Los Angeles, Calif.
 Hospital for Joint Diseases, New York, N. Y.
 Hospital of the Protestant Episcopal Church in Philadelphia, The, Philadelphia, Pa.
 Hospital of St. Barnabas and for Women and Children, Newark, N. J.
 Hospital of St. Vincent De Paul, Norfolk, Va.
 Hospital Supply Co., The, & The Watters Laboratories Consolidated, New York, N. Y.
 Hubbard Hospital, Nashville, Tenn.
 Hudson, Inc., J. B., Philadelphia, Pa.
 Illinois, University of, Chicago, Ill.
 Iowa Lutheran Hospital, Des Moines, Iowa.
 Iowa, University of, Hospital, Iowa City, Iowa.
 Israel Zion Hospital, Brooklyn, N. Y.
 Jackson Memorial Hospital, Miami, Fla.
 Jefferson Hospital, Philadelphia, Pa.
 Jersey City Medical Center, Jersey City, N. J.
 John Sealy Hospital, Galveston, Tex.
 Johns Hopkins Hospital, The, Baltimore, Md.
 Kahler Corporation, The, Rochester, Minn.
 Kalamazoo State Hospital, Kalamazoo, Mich.
 Kansas City, Health Department, Kansas City, Mo.
 Kansas, University of, Hospitals, The, Kansas City, Kans.
 Kenlit Manufacturing Co., Medford, Mass.
 Kern General Hospital, Bakersfield, Calif.
 Kingston Hospital, The, Kingston, N. Y.
 Kleinert Rubber Co., I. B., New York, N. Y.
 Lancaster General Hospital, The, Lancaster, Pa.
 Landers Corporation, The, Toledo, Ohio.
 Lankenau Hospital, The, Philadelphia, Pa.
 Lawrence & Memorial Associated Hospitals, The, New London, Conn.
 Lazarus & Co., The F & R, Columbus, Ohio.
 Lenox Hill Hospital, New York, N. Y.
 Long Island Hospital, Boston Harbor, Mass.
 Lucas County General Hospital, Toledo, Ohio.
 Lutheran Hospital, Cleveland, Ohio.
 Lutheran Hospital, La Crosse, Wis.
 Macy & Co., Inc., R. H., New York, N. Y.
 Mary Hitchcock Memorial Hospital, Hanover, N. H.
 Maryland General Hospital, Baltimore, Md.
 Mason Hospital, Murray, Ky.
 Massachusetts Memorial Hospitals, Boston, Mass.
 Meadowbrook Hospital, Hempstead, N. Y.
 Memorial Hospital, Houston, Tex.
 Memorial Hospital for Treatment of Cancer & Allied Diseases, The, New York, N. Y.
 Menninger Sanitarium, The, Topeka, Kans.
 Mercer Hospital, The, Trenton, N. J.
 Mercy Hospital, Baltimore, Md.
 Mercy Hospital, Hamilton, Ohio.
 Mercy Hospital, Springfield, Mass.
 Mercy Hospital, Wilkes Barre, Pa.
 Mercy Hospital, Janesville, Wis.
 Mercy Hospital—Street Memorial, Vicksburg, Miss.
 Methodist Hospital, Memphis, Tenn.
 Meyer Memorial Hospital, Edward J., Buffalo, N. Y.
 Michael Reese Hospital, Chicago, Ill.
 Miller Products Co., Inc., New York, N. Y.
 Milwaukee County Hospital, Milwaukee, Wis.
 Miner Laboratories, Chicago, Ill.
 Minneapolis General Hospital, Minneapolis, Minn.
 Minnesota, University of, Hospitals, Minneapolis Minn.
 Misericordia Hospital, Philadelphia, Pa.
 Morristown Memorial Hospital, The, Morristown, N. J.
 Mount Sinai Hospital, Milwaukee, Wis.
 Mount Sinai Hospital, The, New York, N. Y.
 Municipal Hospital for Contagious Diseases, Camden, N. J.
 New Bedford Textile School, New Bedford, Mass.
- New Jersey Orthopedic Hospital & Dispensary, Orange, N. J.
 New Orleans, Inc., Better Business of, New Orleans, La. (In principle.)
 New York Hospital, The, New York, N. Y.
 New York Polyclinic Medical School & Hospital, New York, N. Y.
 New York Testing Laboratories, Inc., New York, N. Y.
 Newark City Hospital, Newark, N. J.
 Newton Hospital, Newton Lower Falls, Mass.
 Norton Memorial Infirmary, Louisville, Ky.
 Norwalk General Hospital, Norwalk, Conn.
 Ohio Valley General Hospital, Wheeling, W. Va.
 Ohio Valley Hospital, Steubenville, Ohio.
 Orange General Hospital, Orlando, Fla.
 Orange Memorial Hospital, Orange, N. J.
 Orthmann Laboratories, Inc., The, Milwaukee, Wis.
 Overlook Hospital, Summit, N. J.
 Patzic Testing Laboratories, Des Moines, Iowa.
 Peacock Surgical Co., Inc., Shreveport, La.
 Pennsylvania, Hospital of the University of, Philadelphia, Pa.
 Penniman & Browne, Baltimore, Md.
 Pittsburgh City Home & Hospitals, Mayview, Pa.
 Plymouth Rubber Co., Inc., Canton, Mass.
 Poor Sisters of St. Francis of Perpetual Adoration, Michigan City, Ind.
 Presbyterian Hospital, Pittsburgh, Pa.
 Presbyterian Hospital of the City of Chicago, Chicago, Ill.
 Providence Lying in Hospital, Providence, R. I.
 Queen's Hospital, The, Honolulu, T. H.
 Quincy City Hospital, Quincy, Mass.
 Raifair, Inc. (Formerly Chicago Rubber Clothing Co.), Racine, Wis.
 Rand Rubber Co., Inc., Brooklyn, N. Y.
 Reading Hospital, The, West Reading, Pa.
 Research Hospital, Kansas City, Mo.
 Robert Packer Hospital, Sayre, Pa.
 Rochester General Hospital, The, Rochester, N. Y.
 Roper Hospital, Charleston, S. C.
 Sacramento, Better Business Bureau of, Sacramento, Calif. (In principle.)
 St. Elizabeth Hospital, Chicago, Ill.
 St. Elizabeth Hospital, Elizabeth, N. J. (In principle.)
 St. Elizabeths Hospital, Brighton, Mass.
 St. Elizabeths Hospital, Washington, D. C.
 St. Francis Hospital, San Francisco, Calif.
 St. John's Hospital, Brooklyn, N. Y.
 St. Joseph Hospital, Lexington, Ky.
 St. Joseph Hospital, San Francisco, Calif.
 St. Joseph Hospital, Franciscan Sisters of the Sacred Heart, Joliet, Ill.
 St. Joseph's Hospital, St. Joseph, Mo.
 St. Louis Sampling & Testing Works, St. Louis, Mo.
 St. Luke's & Children's Medical Center, Philadelphia, Pa.
 St. Luke's Home & Hospital, Utica, N. Y.
 St. Luke's Hospital, Bethlehem, Pa.
 St. Luke's Hospital, Chicago, Ill.
 St. Luke's Hospital, Cleveland, Ohio.
 St. Luke's Hospital, New Bedford, Mass.
 St. Luke's Hospital, New York, N. Y.
 St. Luke's Hospital, Newburgh, N. Y.
 St. Luke's Hospital, St. Louis, Mo.
 St. Luke's Hospital, San Francisco, Calif.
 St. Luke's Hospital of Kansas City, Kansas City, Mo.
 St. Luke's Hospital & Nurses' Training School, Ltd., Boise, Idaho.
 St. Mark's Hospital, Salt Lake City, Utah.
 St. Mary's Hospital, Cincinnati, Ohio.
 St. Mary's Hospital, Detroit, Mich.
 St. Mary's Hospital, Duluth, Minn.
 St. Mary's Hospital, Galesburg, Ill.
 St. Mary's Hospital, Grand Rapids, Mich.
 St. Mary's Hospital, Pierre, S. Dak.
 St. Paul's Hospital, Dallas, Tex.
 St. Thomas Hospital of Akron, Akron, Ohio.
 St. Vincent's Hospital, Jacksonville, Fla.
 St. Vincent's Hospital of the City of New York, The, New York, N. Y.
 Salt Lake County General Hospital, Salt Lake City, Utah.
 San Bernardino County Charity Hospital, San Bernardino, Calif.
 San Jose Hospital Corporation, San Jose, Calif.

- Seaside Memorial Hospital of Long Beach, Long Beach, Calif.
Shadyside Hospital, Pittsburgh, Pa.
Shawnee Indian Sanatorium, Shawnee, Okla.
Silver Cross Hospital, Joliet, Ill.
Sinai Hospital of Baltimore, Inc., Baltimore, Md.
Sisters of St. Francis, Rockford, Ill.
Sisters of St. Joseph, Minneapolis, Minn.
Skinner & Sherman, Inc., Boston, Mass.
Snell, Inc., Foster D., Brooklyn, N. Y.
Soldiers & Sailors Home, Grand Island, Nebr.
Southern Baptist Hospital, New Orleans, La.
Southern Pacific General Hospital, San Francisco, Calif.
Spartanburg General Hospital, Spartanburg, S. C.
Springfield City Hospital, The, Springfield, Ohio.
Stamford Hospital, The, Stamford, Conn.
Starling Loving University Hospital, Columbus, Ohio.
Stillman & Van Siclen, Inc., New York, N. Y.
Strong Memorial Hospital, Rochester, N. Y.
Suburban General Hospital, Bellevue, Pa.
Suntek, Inc., New York, N. Y.
Surgical Business, New York, N. Y. (In principle.)
Sutter Hospital of Sacramento, Sacramento, Calif.
Swedish Hospital, The, Seattle, Wash.
Syracuse University, Department of Purchases, Syracuse, N. Y.
Textileather Corporation, Toledo, Ohio.
Thomas D. Dee Memorial Hospital, Ogden, Utah.
Toledo Hospital, The, Toledo, Ohio.
Tuberculosis League Hospital, Pittsburgh, Pa.
Tuomey Hospital, Sumter, S. C.
Twining Laboratories, The, Fresno, Calif.
Union Hospital, Terre Haute, Ind.
- Union Memorial Hospital, Baltimore, Md.
Uniontown Hospital, Uniontown, Pa.
United States Rubber Co., New York, N. Y. (In principle.)
United States Testing Co., Inc., Hoboken, N. J.
Unity Hospital, Brooklyn, N. Y.
Van Cleef Bros., Chicago, Ill.
Vassar Brothers Hospital, Poughkeepsie, N. Y.
Vulcan Proofing Co., Brooklyn, N. Y.
Walsh, M. D., Office of William Henry, Chicago, Ill.
Waterbury Hospital, Waterbury, Conn.
Watts Hospital, Durham, N. C.
Wesley Hospital, Oklahoma City, Okla.
Wesley Memorial Hospital, Chicago, Ill.
Western Shade Cloth Co., The, Chicago, Ill.
White Haven Sanatorium, White Haven, Pa.
Wilkes-Barre General Hospital, Wilkes-Barre, Pa.
William Newton Memorial Hospital, Winfield, Kans.
Williamsport Hospital, The, Williamsport, Pa.
Woman's Hospital, Detroit, Mich.
Women's & Children's Hospital, Toledo, Ohio.
Worcester City Hospital, Worcester, Mass.
Wyandotte General Hospital, Wyandotte, Mich.
York Hospital, York, Pa.

U. S. GOVERNMENT

- Agriculture, U. S. Department of, Washington D. C.
Marine Hospital, Norfolk, Va.
Marine Hospital, Boston, Mass.
Navy Department, Bureau of Medicine & Surgery, Washington, D. C.
Public Health Service, Hospital Division, Bethesda, Md.

